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TO: BPAI  
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PHONE:  
FAX: 9-703-308-7952

FROM: Lucas K. Shay  
E. I. du Pont de Nemours and Co.

PHONE: 302-992-6154  
FAX: 302-892-7925

RE: Phosphorus Reduction in Aqueous Streams  
APPLICATION NO.: 09/898,437  
APPEAL NO.: 2003-0746  
OUR FILE NO. CH2814 US NA

CC:

Number of pages including cover sheet: 8

**Message:**

Please see attached Response to Denial of Request for Rehearing.

LKS

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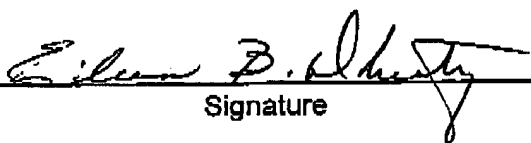
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09/898,437  
Appeal No.: 2003-0746  
CH2814 US NA  
Response to Denial of Request for Rehearing

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Patent

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In the Application of:

Robert H. Moffett

CASE NO.: CH2814 US NA

SERIAL NO.: 09/898,437

GROUP ART UNIT: 1724

FILED: 07/03/2001

EXAMINER: Peter Hruskoci

FOR: Phosphorus Reduction in Aqueous Streams

APPEAL NO.: 2003-0746

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TC 1700

**RESPONSE TO DENIAL OF REQUEST FOR REHEARING**

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Sir:

Appellant appreciates the Board's prompt action mailed July 30, 2003 denying appellant's request for rehearing. However, applicant submits that, in denying appellant's request, the Board (1) incorrectly interpreted Allgulin; (2) contradicted its previous interpretation; and (3) did not decide appellant's argument regarding Chung and Ayukawa.

At least for the record, appellant should submit this request for requesting the Board to reconsider its denial of appellant's request for rehearing.

Here, appellant submits that "flocculated mass" and "precipitate" are patentably interchangeable subject matter.

**The Board Was Technically Inaccurate or Incorrect**

The Board stated (page 2, last sentence of the first full paragraph, Board's denial) that "manifestly, Allgulin, like appellant, employs flocculants to produce a flocculated mass". Appellant respectfully disagrees because Allgulin does not so disclose.

The words closest to "flocculants" disclosed in Allgulin are "flocculating agent" in the last paragraph of column 4, and **ONLY** in this paragraph. For the

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Board's convenience, appellant copied every word from the disclosure as follows, with the word "flocculating" or "flocculated" highlighted in *italics*. Also highlighted in *italics* is the word "precipitated" or "precipitation" to show that the flocculating agent added in Allgulin is **AFTER** a complete precipitation, i.e., after a flocculated mass is completed and is **NOT** for producing precipitation of any impurities.

The solution freed from the major part of its impurity content in the separator 15 is then pumped to a further *precipitation* tank 17. Alkali, here exemplified as NaOH, is charged to the tank 17, together with a *precipitation* agent, here exemplified as FeSO<sub>4</sub>. The amount of alkali added to the solution is adapted so that, subsequent to adding FeSO<sub>4</sub>, the pH of said solution lies within the range of 8.0-9.0, while the amount of sulphate added is adapted so that the ratio X in the solution lies between 10 and 15. In this way, impurity elements can be *precipitated* out to a residual content of less than 1 mg/l solution. The majority of the *precipitate* formed often comprises a relatively voluminous iron-hydroxide with impurity ions such as AsO<sub>2</sub><sup>-</sup> adsorbed thereon. Any mercury and other heavy metals present in the solution will thus be *precipitated* out, together with any arsenic and phosphorous and the iron, to leave extremely low residual contents. When using iron sulphate as the *precipitation* agent, it has, for example, been found possible to *precipitate* mercury to residual contents beneath about 10<sup>3</sup> mg/l, as compared with the relatively high residual contents of from 10<sup>-1</sup> - 10<sup>-3</sup> mg/l achievable with hitherto known methods. **Upon completion of the *precipitation* process**, the solution and the *precipitate* present therein is passed through a pipe 18 to a *flocculating* tank 20, to which a suitable *flocculating* agent is passed through a supply pipe 19. The thus treated solution is pumped from the *flocculating* tank 20 through a pipe 21 to a lamella separator 22. The *flocculated precipitate* is separated from the solution in the lamella separator, and is removed in the form of a sludge from the bottom of the separator 22, as indicated by the line 23, while cleansed solution is removed via an overflow pipe 24, and passed to a cloth filter 25, where the solution is cleansed still further and from which the filtered, purified solution is withdrawn and dumped.

It is clear that, contrary to the Board, Allgulin does not disclose using a flocculating agent to produce a flocculated mass because such flocculating agent is added to facilitate the *removal* of precipitate (not to produce the precipitate or flocculated mass). The limitation is required in appellant's claims.

Even if the Board wished to agree with the examiner in interpreting Allgulin, Allgulin does not disclose that the flocculant is a polymer recited in appellant's claims.

### The Board Made Contradictory Statements

Similar to that discussed above, on page 2, last sentence of the first full paragraph, of the Board's denial, the Board stated that "manifestly, Allgulin, like appellant, employs flocculants to produce a flocculated mass".

Appellant submits that the Board's statement is contrary to the Board's own reasoning in its May 14, 2003 decision affirming the examiner's rejection. There, the Board stated on page 5, first full paragraph, that the Board finds no merit in arguing that Allgulin does **not** suggest adding a flocculant to precipitate phosphorus . . . (bold-type original).

It appears that, when the Board rendered the decision, the Board stated correctly that Allgulin does **not** suggest adding a flocculant to precipitate phosphorus. Though then the Board agreed with appellant in interpreting Allgulin, the Board nonetheless affirmed the examiner's rejection reasoning that appellant's appealed claims simply call for removing phosphorus from an aqueous stream . . . and do not specify that the inorganic colloid and organic polymer perform *precipitation function* (decision, page 5, lines 12-19; italics appellant's).

Responding to the Board's reasoning, appellant, specifically pointed out in request for rehearing that the Board overlooked appellant's claims because appellant's claims **do** require the precipitation function.

However, having decided to deny appellant's request for rehearing, the Board changed its interpretation of Allgulin by stating that Allgulin also employs flocculants to produce a flocculated mass. Appellant submits that the Board cannot change its interpretation of prior art to fit the Board's desire to affirm the examiner's rejection.

Appellant repeatedly showed, by citing words from Allgulin that, in Allgulin, phosphorus was completely precipitated and a "flocculating agent" is added, as discussed above, to remove the precipitate. For the Board's convenience, appellant again quotes, word by word, Allgulin as follows.

Column 2, line 42, et seq. . . . a very large percentage of mercury and other heavy metals present in the aqueous solution could also be precipitated out at the same time as the arsenic and

phosphorous[sic]. . . . , *provided* that there is chosen a precipitation reagent which causes not-readily dissolved hydroxides to form in the solution.

Column 3, line 6, et seq. . . . the impurities in question are precipitated . . . , there is formed in the aqueous solution a hydroxide *precipitate which contains the impurities* and which can be substantially completely separated from the solution.

Column 3, lines 10-13, that there is formed in the aqueous solution a hydroxide *precipitate* which contains the impurities and which can be substantially completely separated from the solution.

It can be seen that Allgulin repeatedly discloses that, to precipitate phosphorus, the precipitant must cause not-readily-dissolved hydroxides to form in the solution. It can also be seen that Allgulin not only discloses, but also suggests that once metal ions are added to the solution, a *complete precipitate* of the impurities including phosphorus is formed and separated. That is, there is no flocculant needed for the *precipitation function*.

In conclusion, appellant's application shows that addition of zinc ion, contrary to Allgulin disclosure, **does not** flocculate phosphorus. Appreciable precipitation or flocculation **does not** take place until appellant further added a recited polymer. These facts have been submitted to the Board. This may be interpreted as either appellant's process differs from that disclosed in Allgulin or the Allgulin disclosure is not enabling. Either interpretation supports the nonobviousness of appellant's claims.

#### The Board Did Not Decide on Whether Chung Suggests Phosphorus Removal

The Board adhered to its decision that Chung is analogous art (page 2, first sentence, last paragraph) without responding to appellant's repeated arguments in appellant's appeal brief and request for rehearing that removing *fat, blood, tissue and other solids* from food processing waste is **NOT** the same as, or similar to, removing phosphorus such as phosphorus in fertilizer.

Using an analogy, the Board appears to compare oranges and apples as the same. It may be true that both oranges and apples are fruits. If range were phosphorus and apple were *fat* or *blood* or *tissue*. Apple can be used to make apple pie, but obviously range cannot be used to make range pie. Squeezing by hand, an orange produces orange juice, but obviously squeezing

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an apple by hand cannot easily produce apple juice. That is, working with an orange is not in the same field as working with an apple, even though both are fruits.

Similarly, appellant wishes that the Board would agree that removing phosphorus (appellant's invention) and removing fat, blood, or tissue from food processing (Chung disclosure) are not in the same field of endeavor.

Appellant therefore requests the Board to reconsider its decision that Chung is an analogous art.

The Board Did Not Decide the Point Concerning Ayukawa and Monick

Appellant has submitted that the Board overlooked the fact that appellant's claims are directed to using polymer(s) to produce a precipitate (flocculated mass).

Appellant has also submitted that the Board overlooked the fact that Ayukawa discloses *coagulating and precipitating* suspended substances and colloidal dispersed particles using an aqueous solution of  $ZrOCl_2 \cdot 8H_2O$ . See Abstract and, especially column 3, lines 54-64. Such disclosure, *precipitating and flocculating a colloidal and non-colloidal substance* by a zirconium salt, goes against, or is contrary to, the claimed invention because the invention recites adding titanium ions or zirconium ions or both **and** an organic polymer to the stream (claim 15 and claims dependent therefrom), **and** further an anionic inorganic colloid (claim 22) to produce a flocculated mass.

If colloidal material is precipitated or chelated by the addition of Zr ions as disclosed in Ayukawa, it is obvious that addition of an inorganic colloid would, as recited in appellant's claims, be precipitated by the Zr ions and the colloid is rendered useless. That is, why would one skilled in the art be so imprudent in adding a colloid to a process, as recited in appellant's claim?

If Ayukawa were true, it is very illogical to suggest the need of adding an organic polymer to the precipitates or chelates. That is, Ayukawa does not suggest the claimed invention and suggest that the invention claims would *not* be successful.

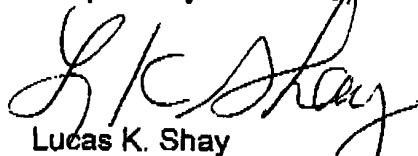
As to Monick, regardless of the Board's view on the term "catalyst", the colloids, e.g., montmorillonite and bentonite, are precipitated by Zr ions, as disclosed in Ayukawa. Once precipitated, a precipitate does not react with any other particles or suspension (such as phosphorus-containing material) in the stream, which are away from the precipitate. Again, the question is why would one skilled in the art be so imprudent as to add a colloid to a process, as recited in appellant's claim, if the colloid is immediately precipitated.

The only logical conclusion is that Ayukawa and Monick are exclusive and are contradictory to each other. The references themselves suggest that these two references cannot be combined, and, in fact, both suggest against their combination for a 103 rejection.

#### Conclusion

The Board's decision denying appellant's request to reconsider is in error because the Board incorrectly interpreted the prior art and incorrectly decided that Chung is analogous art. Without such interpretation or decision, there is no *prima facie* case of obviousness.

Respectfully submitted,



Lucas K. Shay  
Registration No. 34,724  
Telephone: 302-992-6154  
Facsimile: 302-892-7925

Dated: September 4, 2003